

REMARKS

Claims 1-28 were presented and rejected. By this Amendment, claims 1-5, 10, 13, 17, 21-23, and 25-28 are amended, and new claims 29-40 are added. Reconsideration and allowance of pending claims 1-40 in view of the above amendments and following remarks are respectfully requested.

Geddes Anticipation Rejection

Claims 1-12, 14, and 16-17 were rejected under 35 U.S.C. § 102(e) as anticipated by Geddes (U.S. Patent No. 6,481,353). 5/11/10 Office Action, p. 2. Applicants respectfully traverse this rejection for the following reasons.

Independent Claim 1

Applicants respectfully traverse this rejection as applied to claim 1 for several reasons.

First, claim 1 recites, among other things, that “one of said layers compris[es] a ceramic ink comprising glass frit in the form of said print pattern,” “which subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas.” The Office Action asserts that Geddes discloses a “print pattern (Col. 2, lines 12-28 and Figs 1-6A).” 5/11/10 Office Action, p. 2. However, the Office Action fails to assert, much less demonstrate that the alleged print pattern in Geddes “subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas,” as recited in claim 1. Moreover, the Office Action has failed to allege, much less demonstrate that such a layer in the form of the print pattern “compris[es] a ceramic ink comprising glass frit.” The Office Action has therefore failed to present a *prima facie* anticipation rejection for this reason alone.

Moreover, the cited portions of Geddes do not disclose that “one of said layers compris[es] a ceramic ink comprising glass frit in the form of said print pattern,” “which subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas.” FIG. 1 of Geddes is a diagrammatic cross-section through a panel with two outer edges and all the superimposed layers extending to the same two outer edges. Thus, such layers are not shown to “subdivide[] the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas,” as recited in claim 1. FIG. 6A of Geddes merely illustrates a “ribbon” of imaging material, none of which “compris[es] a ceramic ink comprising glass frit

in the form of said print pattern.” Geddes, FIG. 6A; *see also id.* at col. 2, lines 42-44, and col. 13, lines 37-48.

The Office Action cites Geddes at “col. 3, line 20 to col. 5, line 63” as disclosing ceramic ink comprising glass frit. 5/11/10 Office Action, p. 2. However, the only layer discussed in this cited passage as containing glass frit is a “flux underlayer 14.” Geddes, col. 3, line 20 to col. 5, line 63. The flux underlayer 14 is a continuous layer, which is not printed in a pattern of any kind, much less “print[ed]... in the form of said print pattern ...which subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas,” as recited in claim 1. *See* Geddes, FIG. 1; *see also* Geddes, col. 3, lines 23-34 (demonstrating that the flux underlayer 14 is continuous because it is described as being applied at a “coating weight (coverage)... per square meter”). Indeed, the Office Action concedes as much by admitting that this flux underlayer “may reside outside the print pattern.” 5/11/10 Office Action, p. 3. It is impossible for a layer to form a print pattern and simultaneously be disposed both inside and outside of the print pattern.

Thus, Geddes fails to disclose any layer on the glass that “compris[es] a ceramic ink comprising glass frit in the form of said print pattern,” as recited in claim 1. Moreover, there was no obvious reason to have modified Geddes to have satisfied the combination of recitations in claim 1.

To further distinguish claim 1 from Geddes in this regard, Applicants have amended claim 1 to recite, among other things, that said applying/printing results in “said sheet of glass [being] devoid of said one of said layers outside said print pattern.” In contrast, as explained above, the only layers in Geddes disclosed as including glass frit (e.g., the flux underlayer 14) are disposed outside of said print pattern. Moreover, there was no obvious reason to have applied Geddes’ continuous glass-frit-containing flux underlayer 14 in a manner that results in it being applied in the form of said “print pattern which subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas,” as recited in claim 1.

Dependent Claim 2

Applicants also specifically traverse this rejection as applied to amended dependent claim 2, which recites, among other things, that “after (iii), a plurality of said plurality of layers are superimposed and are coterminous at a common length of boundary with a boundary between contiguous printed areas and unprinted areas of the print pattern.” In contrast, as explained

above, Geddes includes no print pattern, much less a print pattern that defines a “boundary between contiguous printed areas and unprinted areas of the print pattern.” Geddes also, therefore, fails to disclose a “plurality of layers [that] are superimposed and coterminous at a common length of boundary” with such a non-existent “boundary between contiguous printed areas and unprinted areas” of a non-existent print pattern. Applicants therefore respectfully request the withdrawal of this rejection of claim 2.

Dependent Claim 10

Applicants also specifically traverse this rejection as applied to claim 10, which recites, among other things, “remov[ing] said pigment outside said print pattern by said subsequent finishing process.” In contrast, Geddes fails to disclose or otherwise render obvious the removal of pigment outside of any print pattern. Applicants therefore respectfully request the withdrawal of this rejection of claim 10.

Dependent Claim 14

Applicants also specifically traverse this rejection as applied to claim 14, which recites, among other things, that “said print pattern is defined by a white ceramic ink comprising said glass frit and resin matrix material.” The Office Action cites “col. 5, line 64 to col. 6, line 55” as disclosing such a combination of recitations. 5/11/10 Office Action, p. 4. However, the cited passage merely refers to the Geddes’ opacification layer 16 of white material. *See* Geddes, col. 5, line 64 to col. 6, line 55. Geddes’ opacification layer does not comprise “glass frit,” as recited in claims 1 and 14. Moreover, Geddes’ opacification layer 16 is continuously applied over the whole of the panel, as illustrated in Fig. 1 (col. 5, lines 64 – 66), and does not define a print pattern that “subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas,” as recited by the combination of claim 14 and its base independent claim 1. Applicants therefore respectfully request the withdrawal of this rejection of claim 14.

Dependent Claim 16

Applicants also specifically traverse this rejection as applied to claim 16, which recites, among other things, “printing said plurality of layers onto said sheet of glass.” The Office Action asserts that “Geddes teaches that the plurality of layers may be transferred as a decal or “printed” onto the substrate (col. 15, line 36 to col. 16, line 63).” 5/11/10 Office Action, p. 4. Applicants specifically traverse this assertion because the cited passage of Geddes discloses only the use of a decal, and never discloses, suggests, or otherwise renders obvious that any of the

layers can be “print[ed] ...onto a sheet of glass,” as recited in claim 16. Rather, all of Geddes’ layers are printed onto a decal and then transferred from the decal to the glass, rather than being printed on the glass. Applicants therefore respectfully request the withdrawal of this rejection of claim 16.

New Dependent Claim 32

New claim 32 further distinguishes one or more embodiments of the present invention from Geddes by additionally reciting, among other things, that “said another of said layers comprises pigment, and said removing the parts of said another of said layers outside said print pattern removes said pigment outside said print pattern.” New claim 32 is patentable over Geddes for similar reasons as discussed above with respect to claim 10.

New Dependent Claim 29

New claim 29 further distinguishes one or more embodiments of the present invention from Geddes by additionally reciting, among other things, that “said subjecting of said sheet of glass and said plurality of layers to the heat treatment process does not cause said glass frit (a) to fuse with said sheet of glass outside said print pattern, or (b) bind said another of said layers outside of said print pattern.” In contrast, as explained above, because Geddes’ only glass-frit-including layers (e.g., the flux underlayer 14) are indiscriminately applied both inside and outside of any print pattern in Geddes, the glass frit in the underlayer 14 would fuse with the sheet of glass outside the print pattern and bind said one of said layers outside of the print pattern.

New Dependent Claim 30

New claim 30 further distinguishes one or more embodiments of the present invention from Geddes by additionally reciting, among other things, that “as viewed in a cross-section through the glass panel, the print pattern comprises alternate printed portions formed by said one of said layers comprising glass frit and unprinted portions devoid of said glass frit.” In contrast, Geddes fails to disclose or otherwise render obvious such a combination of recitations.

Geddes Obviousness Rejection

Claims 13, 15, 18, and 25-28 were rejected under 35 U.S.C. § 103(a) as obvious over Geddes. 5/11/10 Office Action, p. 5. Applicants respectfully traverse this rejection for the following reasons.

Dependent Claims 13, 15, 18, and 25-27

Applicants respectfully traverse this rejection as applied to claims 13, 15, 18, and 25-27. These claims depend, either directly or indirectly, from claim 1, which is novel and nonobvious over Geddes as explained above. Accordingly, Applicants respectfully request the withdrawal of this obviousness rejection at least because these claims depend from nonobvious claim 1.

Independent Claim 28

Applicants also specifically traverse this rejection as applied to independent claim 28 for several reasons.

First, claim 28 recites, among other things, that “one of said layers compris[es] a ceramic ink comprising glass frit in the form of said print pattern,” “which subdivides the panel into a plurality of discrete printed areas and/or a plurality of discrete unprinted areas.” As explained above with respect to claim 1, Geddes fails to disclose or otherwise render obvious such a combination of recitations.

Second, claim 28 recites, among other things, that “said glass frit ... does not migrate into said another of said layers or bind said another of said layers to said sheet of glass outside said print pattern.” In contrast, as explained above with respect to claim 29, Geddes fails to disclose or otherwise render obvious such a combination of recitations. The only layers in Geddes disclosed to include glass frit (e.g., flux undercoat 14) are applied continuously over the surface, and would, therefore, cause the glass frit therein to “migrate into said another of said layers ... outside said print pattern,” and would also cause the glass frit to “bind said another of said layers to said sheet of glass outside said print pattern.”

The entirety of the Office Action’s rejection of claim 28 states:

With respect to claim 13, 25-28 [sic], Geddes (US 6,481,353) is silent regarding the printing of pigment outside of a designated print area of the printed pattern however such a limitation is not construed to patentably distinguish the recited invention in view of the ordinary level of skill in the art at the time of the invention. That is, one skilled in the art would have found it obvious to provide varying pattern coverage for each of the plurality of colorant layers (see figure 7) in order to build up a desired image. Application of at least one of these layers or the opassification layer outside of the coverage of at least one of the other stacked layers would be viewed as conventional and as an obvious extension over the Geddes disclosed process.

5/11/10 Office Action, p. 5. This rejection fails to address any of the recitations in claim 28, much less all of them. Instead, this passage appears to be directed toward a “pigment” recitation that is not even present in claim 28. Moreover, Applicants submit that the allegedly obvious

selective application of the colorant layers, none of which comprise glass frit, fails to disclose or render obvious the recited “print pattern,” the recited “glass frit ...in the form of said print pattern” or the recited lack of binding by the glass frit of “said another of said layers to said sheet of glass outside said print pattern,” as recited in claim 28.

Applicants therefore respectfully request the withdrawal of this rejection of claim 28 for at least these reasons.

Geddes in view of Hill Obviousness Rejection

Claims 19 and 24-28 were rejected under 35 U.S.C. § 103(a) as obvious over Geddes in view of Hill (WO 00/46043). 5/11/10 Office Action, p. 6. Applicants respectfully traverse this rejection for the following reasons.

Dependent Claims 19 and 24-27

Applicants respectfully traverse this rejection as applied to claims 19 and 24-27. These claims depend, either directly or indirectly, from claim 1, which is novel and nonobvious over Geddes as explained above. Hill fails to cure the above-noted deficiencies of Geddes with respect to claim 1. Accordingly, Applicants respectfully request the withdrawal of this obviousness rejection at least because these claims 19 and 24-27 depend from nonobvious claim 1.

Independent Claim 28

Applicants also specifically traverse this rejection as applied to independent claim 28, which is nonobvious over Geddes as explained above. Hill fails to cure the above-noted deficiencies of Geddes with respect to claim 28. Accordingly, Applicants respectfully request the withdrawal of this obviousness rejection of claim 28.

Hill (in view of Geddes)

Claims 1, 2, 4-6, 9-12, and 16-24 were formally rejected under 35 U.S.C. § 103(a) as obvious over Hill alone. 5/11/10 Office Action, p. 7. However, the substance of the rejection relies on a modification in view of Geddes. *See* 5/11/10 Office Action, p. 8 (relying on Geddes). Applicants therefore understand this rejection to be Hill in view of Geddes. Applicants respectfully traverse this rejection for the following reasons.

Independent Claim 1

Claim 1 recites, among other things, “printing one of said layers comprising a ceramic ink comprising glass frit in the form of said print pattern,” “which subdivides the panel into a

plurality of discrete printed areas and/or a plurality of discrete unprinted areas.” In contrast, no layer in Hill is printed in the form of the print pattern (either onto the glass or a decal carrier). Rather, all of Hill’s layers are continuously formed/printed onto the glass or decal carrier without regard to a print pattern, which is only subsequently formed via the ablation/removal of previously printed layers:

Within all the variants of the method of the invention, initial superimposed layers of marking material 10 are applied in layers which may be described as “blocked out” or “solid”, being applied in continuous layers with no attempt to produce the ultimately desired print pattern, typically referred to herein as initial layers. Portions of these layers are subsequently removed to ultimately form a substrate partially imaged with a print pattern of layers of marking material superimposed with substantially exact registration, the unimaged area(s) being where the portions of marking material have been previously removed.

Hill (U.S. Patent No. 6,824,639), col. 22, lines 46-56 (underlining added). Even the Office Action concedes that the alleged one of said layers (i.e., the undercoat and/or overcoat in Hill) “may reside outside the print pattern.” 5/11/10 Office Action, p. 9.

Geddes does not cure this deficiency in Hill, as explained above with respect to the rejection of claim 1 over Geddes.

Moreover, there was no other obvious reason to have modified Hill to satisfy the combination of recitations in claim 28. Applicants therefore respectfully request the withdrawal of this rejection of claim 28, as well as its dependent claims.

Dependent Claim 5

Applicants also specifically traverse this rejection as applied to claim 5, which recites, among other things, “applying a preliminary heat treatment to said one of said layers before the application of said another of said layers and before said subjecting of said sheet of glass and said plurality of layers to said heat treatment process.” Hill does not disclose or render obvious such discrete heat treatments separated by the application of another of said layers. Geddes does not cure this deficiency, and the Office Action does not assert that Geddes does. Applicants therefore respectfully request the withdrawal of this rejection of claim 5.

Dependent Claim 9

Applicants also specifically traverse this rejection as applied to dependent claim 9, which recites, among other things, that “said another of said layers comprises pigment.” The Office Action alleges that Hill’s covercoat 36 is the recited “said another of said layers.” However, that

covercoat 36 is merely a lacquer that does not “comprise pigment,” as recited in claim 9. *See* Hill, p. 40, line 17. Indeed, the Office Action implicitly recognizes as much by recognizing that “covercoat 36 is burned off during the tempering heat treatment, and therefore, by definition, does not contain glass frit.” 5/11/10 Office Action, p. 13. By extension, the burned off covercoat 36 likewise did not comprise pigment.

Moreover, it would not have been obvious to include pigment in the covercoat 36 (i.e., the alleged “said another of said layers”) because such pigment would remain in the “unimaged areas 28” (shown in Hill, FIG. 5F below) outside of the print pattern after vaporization of the remainder of the covercoat 36 (shown sequentially between FIGS. 5E and 5F below). Hill, p. 40, lines 11-22.

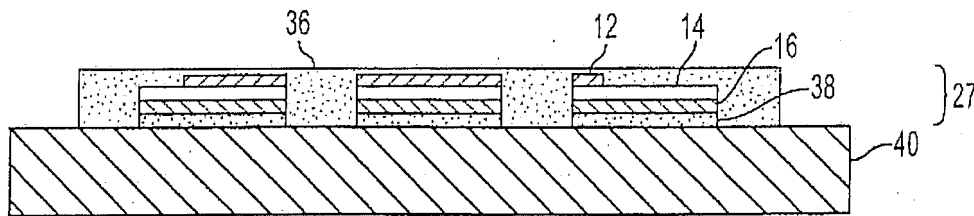


FIG. 5E

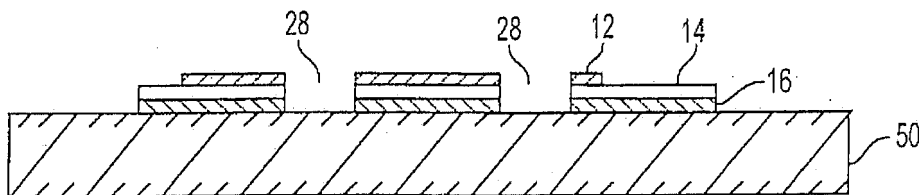


FIG. 5F

Hill

Such pigment would obstruct the view through the unimaged areas 28, thereby defeating Hill’s goal of providing vision through such unimaged areas 28. *See* Hill, p. 1, line 5, to p. 4, line 28. Indeed, this is the very reason that “unwanted ink [is] removed by mechanical means to leave the unimaged areas 28” during a previous pre-heat-treatment step shown from FIGS. 5B to 5C of Hill. *Id.* at p. 40, lines 13-16. Thus, Hill teaches away from the office action’s proposed addition of pigment to the covercoat 36. *See* MPEP 2143.01(V) (“If proposed modification would render the prior art being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.”); MPEP 2145(X)(D)(2) (“It is

improper to combine references where the references teach away from their combination.”) (citation omitted); MPEP 2141.03(VI) (“A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.”) (citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)) (underlining in original).

For at least these reasons, Applicants respectfully request the withdrawal of this rejection.

Dependent Claim 11

Claim 11 recites, among other things, that “said another of said layers comprises an ink comprising a pigment and a binding matrix,” and is patentable over Hill for reasons similar to those discussed above with respect to claim 9.

For at least these reasons, Applicants respectfully request the withdrawal of this rejection.

Dependent Claim 12

Applicants also specifically traverse this rejection as applied to claim 12, which recites, among other things, that “said another of said layers does not comprise glass frit,” and via its independent claim 1, that via a “heat treatment process,” the “glass frit in said one of said layers melts and fuses with said sheet of glass and binds at least a portion of another of said layers within said print pattern.” In contrast, any heat treatment process that melts glass frit will remove the constituents of Hill’s covercoat 36, as recognized by the Office Action’s recognition that the “covercoat 36 is burned off during the tempering heat treatment.” 5/11/10 Office Action, p. 13. Thus, no part of the burned off covercoat 36 (i.e., the alleged another of said layers) could be bound by the glass frit within the print pattern.

Applicants therefore respectfully request the withdrawal of this rejection of claim 12.

New Dependent Claim 34

New claim 34 further distinguishes one or more embodiments from Hill by reciting, among other things, “removing at least a portion of the parts of said another of said layers outside said print pattern after the completion of said heat treatment process.” In contrast, in Hill, all such portions of the another of said layers outside said print pattern are, to the extent they are ever removed, removed prior to the heat treatment process (in the case of ceramic ink layers comprising glass frit) or during the heat treatment process (in the case of covercoat 36), not “after completion of said heat treatment process,” as recited in new claim 34.

New Dependent Claim 35

New claim 35 further distinguishes one or more embodiments from Hill by reciting, among other things, that “said another of said layers comprises pigment that remains on the sheet of glass outside the print pattern until after the completion of the heat treatment process; and said removing removes said pigment of said another of said layers from said sheet of glass outside the print pattern.” In contrast, all pigment in said another of said layers disposed outside the print pattern in Hill is removed prior to the heat treatment, or else it would permanently bind to the glass outside of the print pattern in Hill’s method, contrary to Hill’s teaching.

New Independent Claim 36

New claim 36 further distinguishes one or more embodiments from Hill for several reasons. Claim 36 and Hill involve fundamentally different ways of binding pigment within a print pattern on a sheet of glass, while not binding pigment outside of the print pattern. Hill does so by removing portions of the pigment-containing layers disposed outside of the print pattern via ablation prior to the heat treatment process that binds the remaining pigment within the print pattern. Claim 36 differs from Hill’s method in several ways

First, claim 36 recites, among other things, “printing one of said layers comprising a ceramic ink comprising glass frit in the form of said print pattern.” As explained above, Hill fails to disclose such a combination of recitations because Hill prints all of its layers without regard to a print pattern.

Second, claim 36 also recites, among other things, “removing said pigment outside said print pattern from said sheet of glass” after said subsection of the sheet of glass and said plurality of layers to the heat treatment process (because (ii) and (iii) are recited as occurring sequentially). In contrast, the pigment in the layers of Hill outside the print pattern is and must (according to Hill’s method) be removed prior to such a heat treatment process or else it would permanently bind to the sheet of glass outside the print pattern because the pigment containing layers in Hill also contain frit that would cause such binding.

Hill in view of (Geddes and) Whitehead

Claims 3, 14, and 15 were rejected under 35 U.S.C. § 103(a) as obvious over Hill (WO 00/46043) in view of (Geddes and) Whitehead (U.S. Patent No. 4,321,778). 5/11/10 Office Action, p. 14. These claims depend, either directly or indirectly, from claim 1, which is patentable over Hill and Geddes as explained above. Whitehead does not cure the above-

discussed deficiencies of Hill and Geddes with respect to claim 1. Accordingly, Applicants respectfully request the withdrawal of this obviousness rejection at least because these claims depend from nonobvious claim 1.

Hill in view of (Geddes and) Yamano

Claims 7, 8, and 13 were rejected under 35 U.S.C. § 103(a) as obvious over Hill (WO 00/46043) in view of (Geddes and) Yamano (U.S. Patent No. 4,971,858). 5/11/10 Office Action, p. 15. These claims depend, either directly or indirectly, from claim 1, which is patentable over Hill and Geddes as explained above. Yamano does not cure the above-discussed deficiencies of Hill and Geddes with respect to claim 1. Accordingly, Applicants respectfully request the withdrawal of this obviousness rejection at least because these claims depend from nonobvious claim 1.

Dependent Claim 13

Applicants also specifically traverse this rejection as applied to claim 13, which recites, among other things, that “the heat treatment process burns off said matrix, leaving said pigment on said sheet of glass outside said print pattern.” Claim 13 is patentable over Hill in view of Geddes for reasons similar to those discussed above with respect to claim 9. Specifically, Hill teaches away from leaving pigment in Hill’s unimaged areas 28, as explained above. Yamano cannot cure this deficiency because Hill explicitly teaches away from such a modification, which would result in Hill’s pigment being bound to the glass sheet outside of the print pattern, which is directly contrary to Hill’s explicit teaching and goal.

For at least these reasons, Applicants respectfully request the withdrawal of this rejection of claim 13.

Double Patenting Rejections

Claims 1-2, 17-19, and 21-28 were rejected on the ground of non-statutory double patenting over claims 1, 22, 25, and 26-29 of U.S. Patent No. 6,824,639 (Hill '639). Applicants respectfully traverse this rejection because, as explained above, these claims are nonobvious over the entire disclosure in Hill '639 (via its PCT parent, WO00/46043), and are therefore nonobvious over the specific claims in Hill '639. Moreover, the above rejection of claims 1 and 28 over combinations of Hill and other references shows that even the USPTO agrees that no disclosure in Hill, much less Hill's claims, render independent claims 1 or 28 obvious. Applicants therefore respectfully request the withdrawal of this rejection.

Claims 1-28 were rejected on the ground of non-statutory double patenting over claims 1, 22, 25, and 26-29 of Geddes. Applicants respectfully traverse this rejection because, as explained above, these claims are nonobvious over the entire disclosure in Geddes, and are therefore nonobvious over the specific claims in Geddes. Applicants therefore respectfully request the withdrawal of this rejection.

Conclusion

To the extent that Applicants have not separately addressed each rejection of each dependent claim, this is not to be construed as an admission of the correctness of that rejection. Rather, Applicants believe that the independent claims are patentably distinguishable over the cited references for the reasons noted above, so that the rejection of one or more of the dependent claims need not be addressed at this time. Applicants reserve the right to address the rejection of any dependent claim at a later time should that become warranted.

Applicants submit that the present application is in condition for allowance, and earnestly solicit an early notification to that effect.

Should there be any questions or concerns regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

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Respectfully submitted,

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